TEST REPORT

Report No.	:	WTX24X11277704C
Applicant	:	Lumi United Technology Co., Ltd
Address	:	Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen,China
Manufacturer	:	Same as Applicant
Address	:	Same as Applicant
Sample Name	:	Hub M100
Model No.	:	HM-G02E
Reference Model No.	:	HM-G02D
Brand	:	Aqara
Test Requested	:	In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863, to determine the 10 restricted substances content in the submitted sample.
Test Conclusion	:	**Pass** (Based on the performed tests on the submitted samples, the results comply with the requirement of EU RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863).
Date of Receipt sample	:	2024-12-16
Testing period	:	2024-12-16 ~ 2024-12-24
Date of Issue	:	2024-12-24
Test Result	:	Refer to next page (s)

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

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Signed for and on behalf of
Waltek Testing Group (Shenzhen) Co., Ltd.

Hugo.CHen

Test Method：

- IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry (XRF)
- IEC 62321-4:2013+AMD1:2017 CSV for mercury (Hg), analyzed by ICP-OES
- IEC 62321-5:2013 for lead (Pb) and cadmium (Cd), analyzed by ICP-OES
- IEC 62321-7-2:2017 and/or IEC 62321-7-1:2015 for hexavalent chromium (Cr^{6+}), analyzed by UV-Vis
- IEC 62321-6:2015 for PBBs and PBDEs, analyzed by GC-MS
- IEC 62321-8:2017 for phthalates, analyzed by GC-MS

Test Results:

1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
1	White plastic	BL	BL	BL	BL	BL	NA
2	White plastic shell	BL	BL	BL	BL	BL	NA
3	White plastic	BL	BL	BL	BL	BL	NA
4	Transparent plastic label w/gray printing	BL	BL	BL	BL	BL	NA
5	White rubber ring	BL	BL	BL	BL	BL	NA
6	Silvery metal shell	BL	BL	BL	BL	NA	NA
7	Golden cladding metal PIN	BL	BL	BL	BL	NA	NA
8	White plastic	BL	BL	BL	BL	IN	PBBs：ND PBDEs：ND
9	Translucent plastic filling	BL	BL	BL	BL	BL	NA
10	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
11	Red plastic wire jacket	BL	BL	BL	BL	BL	NA
12	White plastic wire jacket	BL	BL	BL	BL	BL	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
13	Green plastic wire jacket	BL	BL	BL	BL	BL	NA
14	Silvery metal wire core	BL	BL	BL	BL	NA	NA
15	Solder	BL	BL	BL	BL	NA	NA
16	Black IC SMD	BL	BL	BL	BL	BL	NA
17	Silvery metal body（Crystal oscillator）	BL	BL	BL	BL	NA	NA
18	Black IC SMD	BL	BL	BL	BL	BL	NA
19	Black IC SMD	BL	BL	BL	BL	BL	NA
20	Green cladding PCB board	BL	BL	BL	BL	BL	NA
21	Gray solid material（Inductance）	BL	BL	BL	BL	BL	NA
22	Coppery metal coil（Inductance）	BL	BL	BL	BL	NA	NA
23	Black IC SMD	BL	BL	BL	BL	BL	NA
24	Brown capacitor SMD	BL	BL	BL	BL	BL	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
25	Black IC SMD	BL	BL	BL	BL	BL	NA
26	Black cladding PCB board （Test as a whole）	BL	BL	BL	BL	IN	PBBs：ND PBDEs：ND
27	Black plastic button (switch)	BL	BL	BL	BL	BL	NA
28	Silvery square metal body（switch）	BL	BL	BL	IN	NA	Cr^{6+}：Negative
29	Silvery metal sheet（switch）	BL	BL	BL	IN	NA	Cr^{6+}：Negative
30	Black plastic base（switch）	BL	BL	BL	BL	BL	NA
31	Black triode SMD	BL	BL	BL	BL	BL	NA
32	Black diode SMD	BL	BL	BL	BL	BL	NA

Note:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < IN

BL= Below Limit OL= Over Limit LOD = Limit of Detection -- = Not Regulated

(2) “IN” expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.

(3) The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.

(4) mg / kg =milligram per kilogram=ppm, μg/cm^2= Micrograms per square centimeter.

(5) ND = Not Detected, less than the value of Method Detection Limit.

(6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the chemical testing.

(7) MDL= Method Detection Limit in chemical test.

Test Items	Pb	Cd	Hg	Cr^{6+}		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm^2	mg/kg	mg/kg
MDL	10	10	10	10	0.1	10	10

The MDL for single compound of PBBs and PBDEs is 10mg/kg, MDL of Cr^{6+} for polymer and composite sample is 10mg/kg and MDL of Cr^{6+} for metal sample is 0.1μg/cm^2.

(8) Requirement as per RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr^{6+})	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

(9) According to IEC 62321-7-1:2015, determined of Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10μg/cm^2.

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13μg/cm^2.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

(10) Abbreviation:

"Pb" denotes Lead, "Cd" denotes Cadmium, "Hg" denotes Mercury, "Cr" denotes Chromium, "Cr^{6+}" denotes Hexavalent Chromium, "Br" denotes Bromine, "PBBs" denotes Total Polybrominated Biphenyls, "PBDEs" denotes Total Polybrominated Diphenyl Ethers.

2. Phthalates (DEHP, BBP, DBP, DIBP)

Serial No.	Part No. (See Photograph of parts tested)	Result (mg/kg)			
		DIBP	DBP	BBP	DEHP
T01	1	ND	ND	ND	ND
T02	2+3+4△	ND	ND	ND	ND
T03	5	ND	ND	ND	ND
T04	8+9△	ND	ND	ND	ND
T05	10+11△	ND	ND	ND	ND
T06	12+13△	ND	ND	ND	ND
T07	16+18+19△	ND	ND	ND	ND
T08	20+21+23△	ND	ND	ND	ND
T09	24+25+26△	ND	ND	ND	ND
T10	27+30△	ND	ND	ND	ND
T11	31+32△	ND	ND	ND	ND

Note:

(1) mg/kg =milligram per kilogram= ppm.

(2) Requirement as per RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863

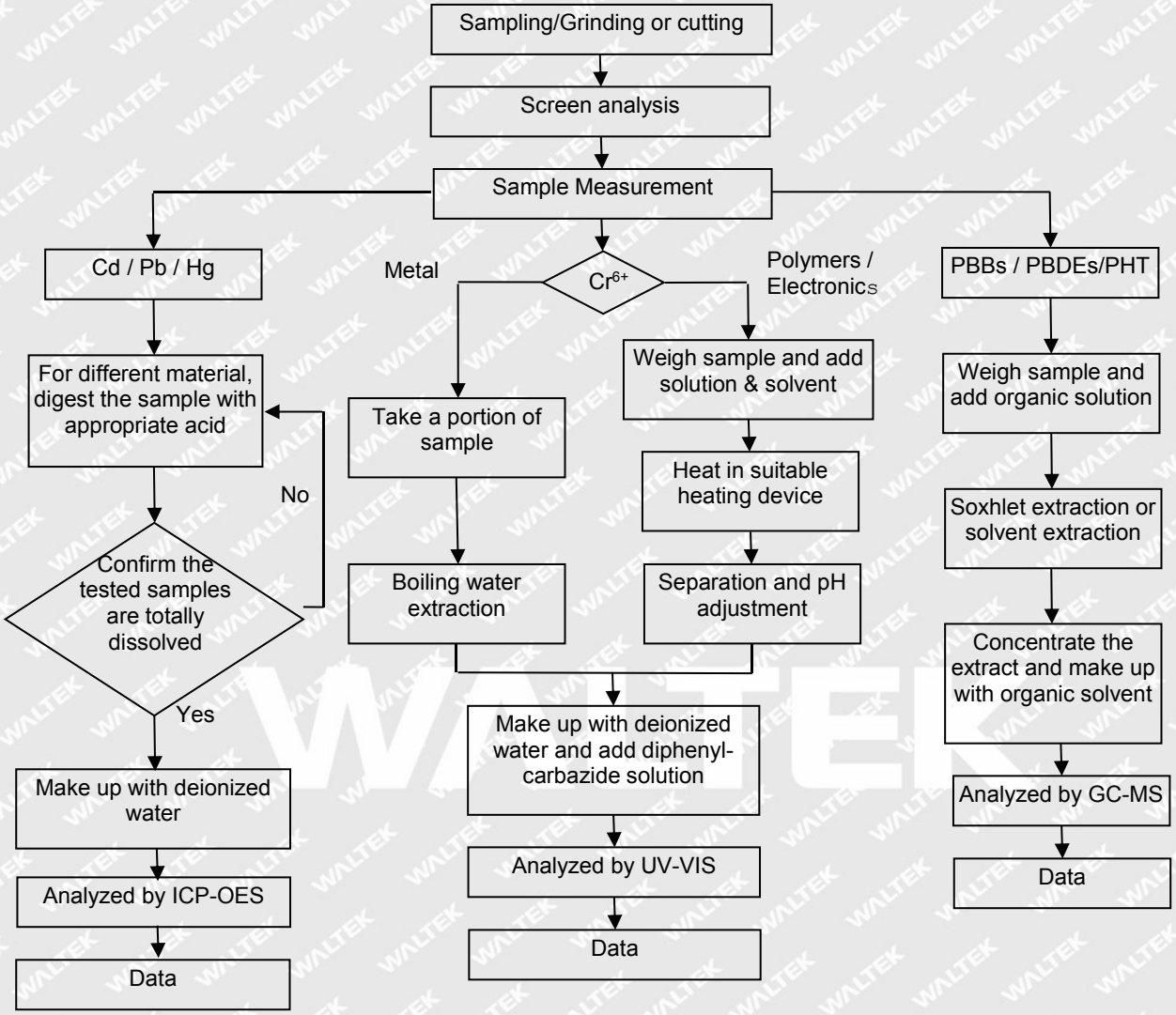
Test Item(s)	Limit（mg/kg）
Bis (2-ethylhexyl)- phthalate (DEHP)	1000
Dibutyl phthalate (DBP)	1000
Benzylbutyl phthalate (BBP)	1000
Diisobutyl phthalate (DIBP)	1000

(3) Abbreviation:
"DBP" denotes Dibutyl phthalate, "BBP" denotes Benzyl butyl phthalate (BBP), "DEHP" denotes Bis(2-ethylhexyl)-phthalate, "DIBP" denotes Diisobutyl phthalate, "PHT" denotes Phthalates.

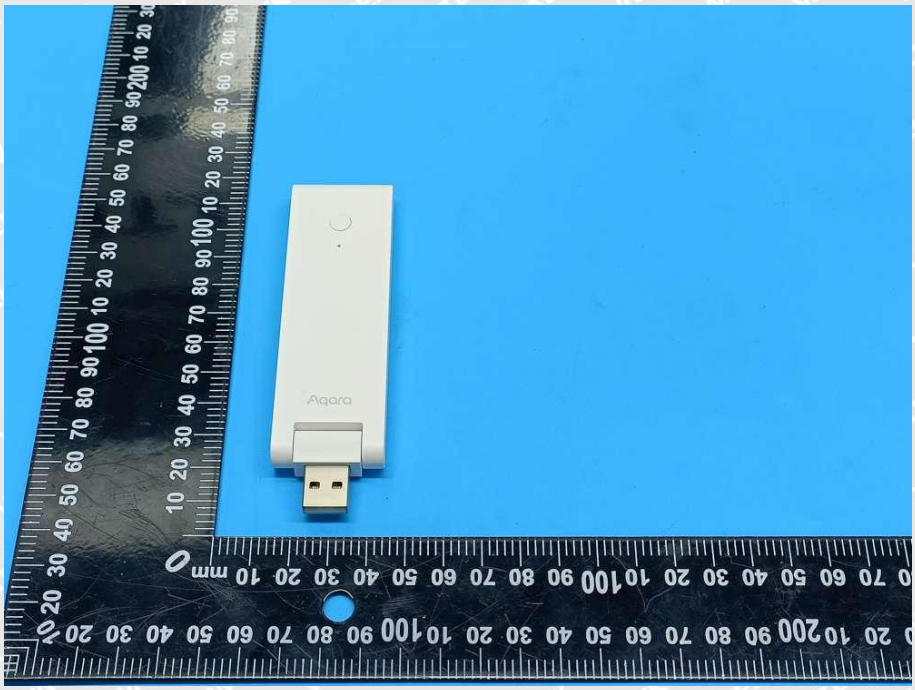
(4) Method Detection Limit (MDL) : 50mg/kg for each of phthalate.

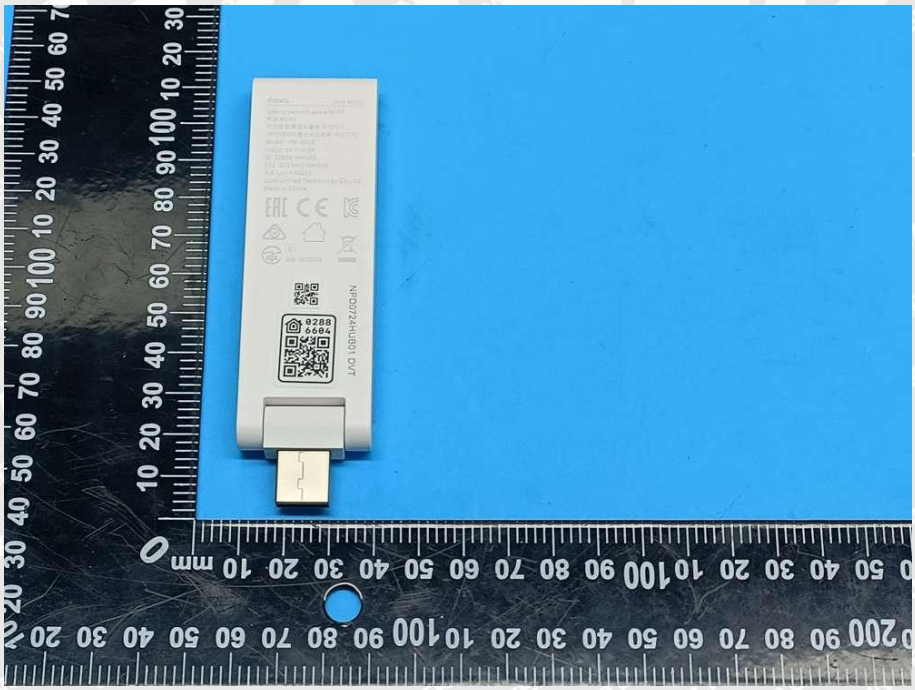
(5) "△"= As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

Measurement Flow chart:

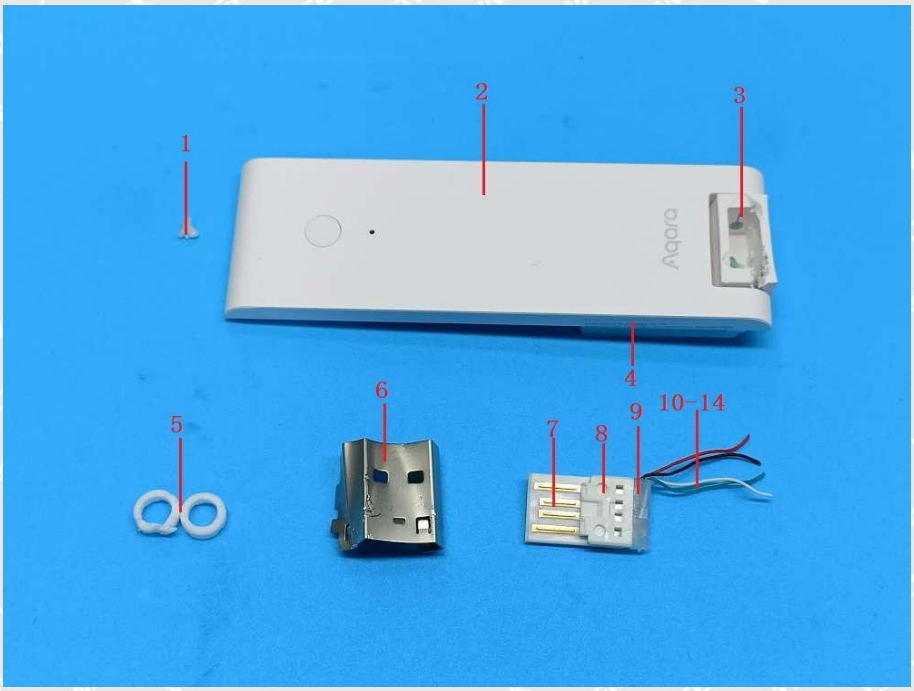


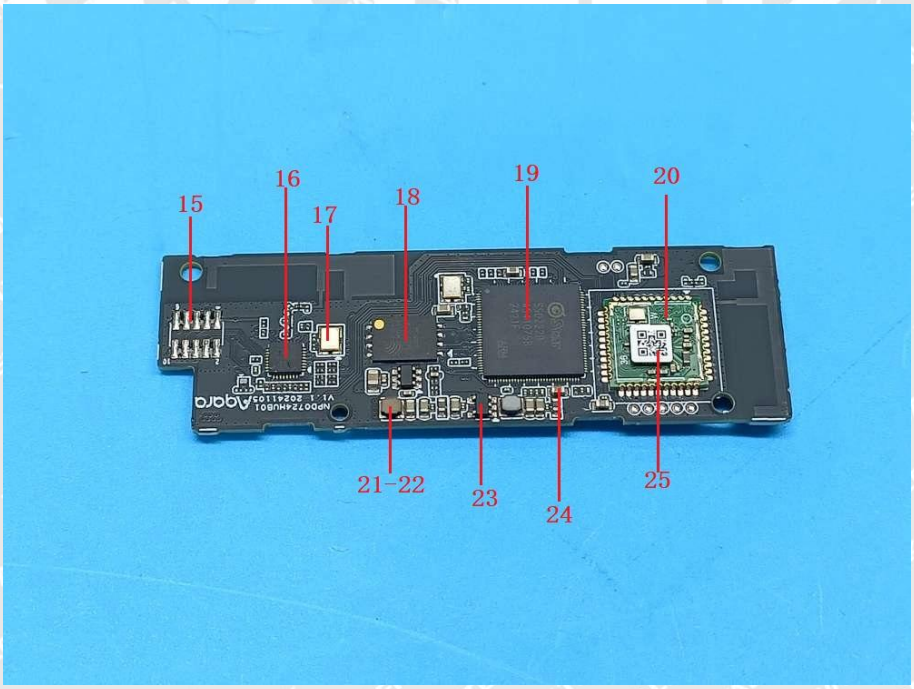
Sample Photo:

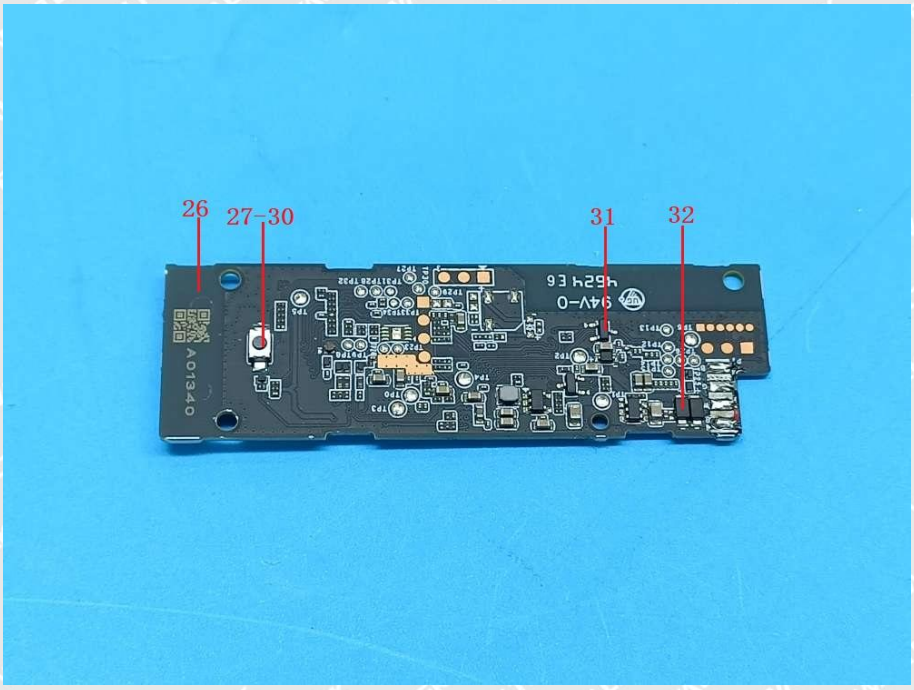




Photograph of parts tested ：







Remarks:

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